

Name \_\_\_\_\_

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

1) What are the parts of the cranking circuit?

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2) What are the steps taken to perform a voltage drop test of the cranking circuit?

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3) What could be the cause of excessive starter current draw

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4) What are typical starter amperage draw for four-, six-, and eight-cylinder engines?

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5) What are the steps necessary to replace a starter?

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## Answer Key

Testname: AAEE\_SHORT10

- 1) The parts of the cranking circuit include the ignition switch, safety switch, solenoid, starter, plus the battery and cables/ wires.  
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- 2) A voltage drop test is performed by connecting a voltmeter to two parts of the cranking circuit and cranking the engine. The voltmeter indicates the difference in voltage between the meter leads and should be less than 0.5 volt per cable and 0.1 volt or less per connection.  
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- 3) Excessive current draw may indicate one or more of the following:
  1. Binding of starter armature as a result of worn bushings
  2. Oil too thick (viscosity too high) for weather conditions
  3. Shorted or grounded starter windings or cables
  4. Tight or seized engine
  5. Shorted starter motor (usually caused by fault with the field coils or armature)**Page Ref: 120**
- 4) The following can be used as general maximum amperage draw specifications for testing a starter on the vehicle.
  - 4-cylinder engines = 150 to 185 amperes (normally less than 100 amperes) at room temperature
  - 6-cylinder engines = 160 to 200 amperes (normally less than 125 amperes) at room temperature
  - 8-cylinder engines = 185 to 250 amperes (normally less than 150 amperes) at room temperature**Page Ref: 120**
- 5) The negative battery cable should be removed from the battery and the vehicle hoisted safely in most cases. The attaching bolts should be removed and the starter removed from the engine. Often the wiring is easier to remove with the starter removed from the engine.  
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